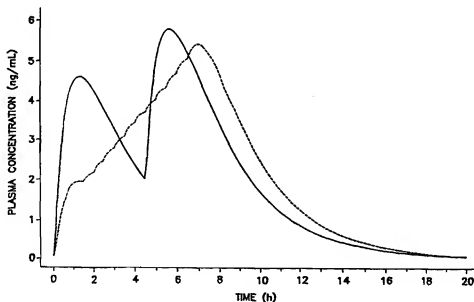




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup>:</b> <b>A61K 9/50, 9/20</b>	<b>(11) International Publication Number:</b> <b>WO 98/14168</b> <b>(43) International Publication Date:</b> 9 April 1998 (09.04.98)
<b>(21) International Application Number:</b> PCT/US97/16599 <b>(22) International Filing Date:</b> 16 September 1997 (16.09.97) <b>(30) Priority Data:</b> 60/028,726 30 September 1996 (30.09.96) US 60/030,514 12 November 1996 (12.11.96) US 60/044,121 22 April 1997 (22.04.97) US <b>(71) Applicant:</b> ALZA CORPORATION [US/US]; 950 Page Mill Road, P.O. Box 10950, Palo Alto, CA 94303-0802 (US). <b>(72) Inventors:</b> GUPTA, Sunel, K.; 1331 Elsona Drive, Sunnyvale, CA 94087 (US). GUINTA, Diane, R.; 3164 Manchester Court, Palo Alto, CA 94303 (US). CHRISTOPHER, Carol, A.; 2638 Belmont Canyon Road, Belmont, CA 94002 (US). SAKS, Samuel, R.; 2404 Hillside Drive, Burlingame, CA 94010 (US). <b>(74) Agents:</b> SABATINE, Paul, L. et al.; Alza Corporation, 950 Page Mill Road, P.O. Box 10950, Palo Alto, CA 94303-0802 (US).	<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> <b>(88) Date of publication of the international search report:</b> 30 July 1998 (30.07.98)

**(54) Title:** DOSAGE FORM PROVIDING A SUSTAINED AND ASCENDING DRUG RELEASE**(57) Abstract**

A dosage form and a method are disclosed and claimed for administering a drug in a sustained and constantly ascending rate per unit time to provide an intended therapeutic effect while concomitantly lessening the development of unwanted effects.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US 97/16599

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 6 A61K9/50 A61K9/20

According to International Patent Classification(IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 094 123 A (PROCTER & GAMBLE) 16 November 1983 see page 8 - page 9; examples 1-4 ---	1-7, 9, 12
X	WO 93 05769 A (MARVOLA MARTTI LAURI ANTERO ;SIRKIAE TAINA (FI)) 1 April 1993 see page 1, line 1 - line 3 see page 4 - page 5; example 1 ---	1-7, 9-12
X	EP 0 212 747 A (PROCTER & GAMBLE) 4 March 1987 see page 9 - page 10; examples 1-3 ---	1-9, 12
X	BE 675 379 A (ROBINS COMPANY INC) 31 May 1966 see page 16 - page 17; example 1 ---	1, 9-12

-/--

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

**\* Special categories of cited documents:**

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "Z" document member of the same patent family

Date of the actual completion of the international search

5 June 1998

Date of mailing of the international search report

12/06/1998

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Boulois, D

# INTERNATIONAL SEARCH REPORT

Inte. onal Application No

PCT/US 97/16599

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 381 219 A (WARNER LAMBERT CO) 8 August 1990 see page 3 - page 4; example 1 ----	1,2,5,8, 10-12
X	EP 0 348 808 A (KLINGE CO CHEM PHARM FAB) 3 January 1990 see page 11; example 4 ----	1,2,8-12
X	EP 0 216 743 A (PHARLYSE SA) 1 April 1987 see page 10 - page 14; example 1 ----	1-12
X	FR 2 635 460 A (SS PHARMACEUTICAL CO) 23 February 1990 see page 6 - page 7; examples 1,2 ----	1-9
E	WO 98 06380 A (ALZA CORP) 19 February 1998 see claims 1-5 see page 23 - page 25; example 4 see page 29 - page 33; example 8 ----	1-12
A	US 2 738 303 A (BLYTHE R. ET AL) 13 March 1956 see column 1, line 63 - column 2, line 24 see column 4; example 1 -----	1-12

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/16599

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0094123 A	16-11-1983	NONE	
WO 9305769 A	01-04-1993	FI 914354 A AT 135204 T CA 2119158 A DE 69209080 D DE 69209080 T EP 0605514 A	18-03-1993 15-03-1996 01-04-1993 18-04-1996 01-08-1996 13-07-1994
EP 0212747 A	04-03-1987	AU 601692 B AU 6118986 A CA 1275048 A DK 390586 A GB 2179254 A,B HK 48392 A JP 1982831 C JP 7010773 B JP 62111923 A	20-09-1990 19-02-1987 09-10-1990 17-02-1987 04-03-1987 10-07-1992 25-10-1995 08-02-1995 22-05-1987
BE 675379 A	31-05-1966	DK 115350 B FR 5137 M FR 1465919 A GB 1113860 A NL 6516147 A US 3400197 A	29-09-1969 05-06-1967 31-03-1967 27-07-1966 03-09-1968
EP 0381219 A	08-08-1990	US 4927639 A AU 622751 B AU 4899290 A CA 2009135 A CN 1053744 A DK 381219 T ES 2055177 T IL 92994 A JP 2240017 A PH 26317 A PT 93029 A	22-05-1990 16-04-1992 09-08-1990 02-08-1990 14-08-1991 01-06-1993 16-08-1994 12-04-1994 25-09-1990 29-04-1992 31-08-1990
EP 0348808 A	03-01-1990	DE 3822095 A CA 1339072 A	04-01-1990 29-07-1997

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/16599

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0348808 A		DE 58906926 D	24-03-1994
		ES 2061799 T	16-12-1994
		JP 1981291 C	25-10-1995
		JP 2056418 A	26-02-1990
		JP 7002635 B	18-01-1995
		US 4980170 A	25-12-1990
EP 0216743 A	01-04-1987	LU 86077 A	02-04-1987
		DE 3688031 A	22-04-1993
		US 4859469 A	22-08-1989
FR 2635460 A	23-02-1990	BE 1002710 A	14-05-1991
		CA 1319616 A	29-06-1993
		CH 678813 A	15-11-1991
		DE 3915150 A	01-03-1990
		GB 2221842 A, B	21-02-1990
		HK 48194 A	27-05-1994
		JP 2086036 C	23-08-1996
		JP 2237918 A	20-09-1990
		JP 7116028 B	13-12-1995
		KR 9503610 B	17-04-1995
		NL 8901200 A	16-03-1990
		SE 8901593 A	06-12-1990
WO 9806380 A	19-02-1998	US 4968505 A	06-11-1990
		AU 3909597 A	06-03-1998
US 2738303 A	13-03-1956	GB 715305 A	